

REMARKS

This Amendment responds to the Final Office Action dated November 2, 2006. Applicants respectfully request reconsideration of the Examiner's rejections of Claims 11, 13-19, and 21-51. Applicants have added new dependent Claims 52-56. As such, Claims 11, 13-19, and 21-56 are pending.

Applicants' attorneys appreciate the Examiner's time and consideration during the personal interview of November 28, 2006. During the interview, Applicants' attorneys and the Examiner discussed the outstanding rejections. Specifically, Applicants' attorneys submitted that the nonobviousness of the claimed invention is demonstrated by objective evidence of a long-felt need in the art.

In support of the nonobviousness of the claimed invention, Applicants submit herewith a Declaration of Gary Meyer Under 37 C.F.R. § 1.132 ("Meyer Declaration") and its attached Appendices A-X.

I. The Claimed Invention

The claimed invention includes a battery pack used to power one or more hand-held power tools. The battery pack includes a plurality of battery cells that have a lithium-based chemistry.

II. Claim Rejections – 35 U.S.C. § 103

The Examiner rejected (1) claims 11, 19, and 27-28 as being unpatentable over United States Patent No. 6,329,788 ("Bailey"); (2) claims 13-17, 21-25, and 38-44 as being unpatentable over Bailey in view of Santana and United States Patent No. 6,509,114 ("Nakai"); (3) claims 18 and 26 as being unpatentable over Bailey in view of Santana and United States Patent No.

4,893,067 ("Bhagwat"); and (4) claims 29-37, 43, and 45-51 as being unpatentable over Bailey in view of Santana, Bhagwat, and Nakai.¹

None of the cited references discloses use of lithium-based battery chemistries in power tools. In the Office Action, the Examiner admitted that Bailey does not disclose battery cells having a lithium-based chemistry. However, the Examiner reasoned that:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected any type of batteries including Lithium, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

(Final Office Action, page 2.) Applicants respectfully disagree because, as discussed below, objective evidence of secondary considerations confirms that the claimed invention has satisfied a long-felt need in the power tool industry, and therefore, is nonobvious and patentable over the cited references.

III. Secondary Consideration of Long-Felt Need Demonstrates Nonobviousness of the Claimed Invention

Applicants submit herewith objective evidence of the claimed invention's satisfaction of a long-felt need.

A. Secondary Considerations of Nonobviousness Must Be Considered

Obviousness under 35 U.S.C. § 103 is a legal conclusion which requires the resolution of four preliminary factual inquiries:

- 1) the scope and content of the prior art;
- 2) the differences between the claims and the prior art;
- 3) the level of ordinary skill in the pertinent art; and
- 4) secondary considerations, if any, of nonobviousness.

¹ Claims 1-10 were cancelled in Applicants' Amendment of June 2, 2006.

See Uniroyal v. Rudkin-Wiley Corp., 837 F.2d 1044, 1050 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 825 (1988). Secondary considerations include objective indicia of nonobviousness such as commercial success due to the invention, long-felt but unresolved need, and copying of the invention in preference to copying the prior art. *See Graham v. John Deere & Co.*, 383 U.S. 1, 17-18 (1966); *Panduit Corp. v. Dennison Mfg.*, 810 F.2d 1561, 1566-1568 (Fed. Cir. 1987), *cert. denied*, 481 U.S. 1052 (1987). Such objective evidence of obviousness

must always when present be considered en route to a determination of obviousness because: evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.

Uniroyal, 837 F.2d at 1053 (emphasis added) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983)). *See also Graham*, 383 U.S. at 35; *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 725 (Fed. Cir. 1990) (“an analysis of obviousness must address objective evidence of nonobviousness”). Although often termed “secondary,” the Federal Circuit has noted that these objective factors highlighted in *Graham v. John Deere* are often the most probative evidence of nonobviousness, because all other evidence is potentially tainted by hindsight. *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). *See Stratoflex*, 713 F.2d at 1538; *In Re GPAC, Inc.*, 57 F.3d 1573, 35 U.S.P.Q.2d 1116, 1121 (Fed. Cir. 1995).

Numerous decisions rely upon facts showing a long-felt need for an invention, and the failure of others to meet that need, as evidence probative of patentability. *See, e.g., Goodyear Tire & Rubber v. Ray-O-Vac*, 321 U.S. 275; *Eibel Process v. Minnesota & Ontario Paper*, 261 U.S. 45, 53-54, 68 (1923); *Great Northern Corp. v. Henry Molded Prods.*, 864 F. Supp. 865 (E.D. Wis. 1994). As one court noted:

The existence of an enduring, unmet need is strong evidence that the invention is novel, not obvious, and not anticipated. If people are clamoring for a solution, and the best minds do not find it for years, that is practical evidence—the kind that can't be bought from a hired expert, the kind that does not depend on fallible memories or doubtful inferences—of the state of knowledge.

In re Mahurkar Patent Litig., 831 F. Supp. 1354, 1378 (N.D. Ill. 1993), *aff'd*, 71 F.3d 1573 (Fed. Cir. 1995).

B. MPEP Long-Felt Need Standard

According to the *Manual of Patent Examining Procedure*, objective evidence used to establish long-felt need and failure of others requires that the need (1) must have been a persistent one recognized by those of ordinary skill in the art; (2) must not have been satisfied by another before the invention by the applicant; and (3) must be satisfied by the invention. MPEP § 716.04.

C. Declaration of Gary Meyer Under 37 CFR § 1.132 and Accompanying Materials

In support of the long-felt need and therefore, the nonobviousness of the claimed invention, attached hereto is the above-mentioned Meyer Declaration and its Appendices A-X, which include a significant body of industry analysis, as well as independent research results. Mr. Meyer is an inventor of the claimed invention and an employee of Milwaukee Electric Tool Corporation (“Milwaukee”), the assignee of the present patent application. The Meyer Declaration and accompanying materials demonstrate the long-felt but unmet need for a lightweight power tool battery capable of performing high power, heavy-duty jobs; that this need had not been met by any other prior art technology; and that the claimed invention in fact satisfies this need.

1. Persistent Need

The claimed invention meets the first requirement for long-felt need under the *MPEP*—that “the need must have been a persistent one that was recognized by those of ordinary skill in the art.” *MPEP* § 716.04. Prior to the introduction of the claimed invention, the power tool industry experienced a persistent need for a high-power, heavy-duty battery that did not have the added weight of prior art battery technologies, such as nickel-cadmium (NiCad) and nickel-metal hydride (NiMH). Meyer Decl. ¶¶ 5-10.

The increased popularity of cordless power tools over the past several decades drove the increase in demand for a higher power battery for heavy duty jobs. Meyer Decl. ¶ 5. While prior art battery technologies were capable of providing high power, such power came at a cost: excessive battery weight. *Id.* Thus, manufacturers could not produce high-power batteries that would be practical for use in the field; tools with such batteries would be too heavy to manipulate or transport. *Id.* As such, manufacturers were limited to producing lightweight batteries that only could perform light-duty jobs. *Id.*

For many years, the power tool industry unsuccessfully sought alternatives to prior art battery technologies. Meyer Decl. ¶ 6. The conventional view in the industry was that one alternative battery chemistry, lithium, was too unstable for use in cordless tool applications, which require high amounts of current on an irregular and largely unpredictable basis. *Id.* When a power tool is initially turned on, there is an immediate demand for high power. Thereafter, as a user manipulates the tool, the power demands of the tool vary widely. In view of the known instability of lithium and the rigorous power demands of power tools, the power tool industry perceived lithium as an unworkable chemistry for cordless tool applications. With no heavy-duty yet lightweight cordless tools available, consumers were forced to choose between light-

duty cordless tools or heavy-duty tools that were corded and inconvenient. *Id.* However, with Applicants' battery pack invention, the solution to this industry need emerged. *Id.* According to *Popular Science*, the battery pack invention allowed Applicants to "create cordless tools that have never existed because of their heavy power demands." *Id.*, App. C.

This persistent need for a solution has been recognized by those of ordinary skill in the art. Meyer Decl. ¶ 7. For instance, numerous industry publications have conferred product innovation awards on the battery pack invention because of the persistent industry need that it solved. *Id.* These awards include (1) 2005 Editors' Choice Grand Award by *Tools of the Trade*, (2) 2005 *Handy* Innovation Awards: Nine Groundbreaking New Products, (3) 2005 Breakthrough Award by *Popular Mechanics*, (4) 2005 Most Innovative Product by *Electrical Contracting Products*, (5) Top 10 Innovative Tools 2006 by *Workbench*, (6) Most Valuable Product by *Building Products Magazine*, (7) Co-recipient of 2006 Editors' Choice Grand Award by *Tools of the Trade*, and (8) 2006 Reader's Choice Award by *Woodshop News*. *Id.*

The industry publications that presented these awards are highly regarded, well established, and widely distributed throughout the industry. Meyer Decl. ¶ 8. The publications were highly selective in their presentation of awards. *Id.* For example, *Electrical Contracting Products*, which reaches over 40,000 medium to large electrical contracting firms each month, selected only 18 winners from a field of over 120 product finalists. *Id.*, App. M. Similarly, *Tools of the Trade* selected only 16 winners of its 2005 Editors' Choice Awards and placed the battery pack invention at the top of that list as winner of the Editors' Choice Grand Award. *Id.*, App. A.

In addition to the numerous innovation awards, a significant number of industry publications have acknowledged the groundbreaking nature of the battery pack invention against

the backdrop of prior art technologies. Meyer Decl. ¶ 10, App. X. Commentators agree that the power tool industry's trend toward cordless tools had created the need for more power and better performance without added weight, and that the claimed invention has solved this need. *Id.* Specifically, one of Canada's foremost experts on the subject believes that many companies have long awaited a product having the benefits of the claimed invention. *Id.*, App. E.

Together, the large number of product innovation awards and industry commentary confirm the existence of the power tool industry's persistent need for a high-power and heavy-duty, yet lightweight battery—a persistent need that, according to the power tool industry, could not be satisfied by lithium.

2. Long-Felt Need Not Satisfied By Another

The claimed invention also meets the second requirement for long-felt need under the *MPEP*—that the “long-felt need must not have been satisfied by another before the invention by applicant.” *MPEP* § 716.04. The conventional view in the industry prior to the claimed invention was that lithium was not a viable technology for power tool battery packs. Meyer Decl. ¶ 11. Industry analysis devoted to the claimed invention acknowledges that despite this conventional view in the industry and the numerous competitors therein, Applicants were the first to satisfy the need. *Id.* This analysis and commentary named the claimed invention “an industry first” and “the first of its kind” and acknowledged that Milwaukee “has shattered the weight/power barrier with a lithium-ion battery” *Id.*, Apps. F, K, H.

Moreover, industry analysts recognized that when Milwaukee's competitors launched their own lithium-ion battery products, the competitors “follow[ed] the lead of Milwaukee Electric Tool.” *Id.*, App. Q. The claimed invention was also recognized in an equity research publication as a “competitive threat” to other power tool companies. *Id.*, App. I. The large

amount of industry commentary, which consistently acknowledges Applicants' claimed invention as the first to satisfy the industry's long-felt need, establishes that the claimed invention meets the second requirement for long-felt need under the *MPEP*.

3. Invention Satisfies Need

Lastly, the claimed invention meets the third requirement for long-felt need under the *MPEP*—that “the invention must in fact satisfy the long-felt need.” *MPEP* § 716.04. As the Meyer Declaration and independent test results establish, the claimed invention does in fact satisfy the power tool industry's long-felt need described above. Meyer Decl. ¶ 12, App. W. The tests, which were conducted by a long-standing, worldwide independent testing organization, compared the performance of Milwaukee's V28 line of power tools, the commercial embodiment of the claimed invention, with the performance of representative cordless power tool products employing prior art battery chemistries, such as nickel-cadmium. *Id.* The test results showed that Milwaukee's lithium-ion products outperformed all other products tested and yet weighed less than the other products. *Id.* Accordingly, despite the power tool industry's skepticism of lithium as prohibitively unstable, Applicants pursued lithium for use in cordless tool applications, ultimately inventing a lithium-based technology that meets the rigorous power demands of such applications, both in terms of the high current required and the irregularity at which high current must be delivered during use.

In addition to the superior independent test results, industry commentary and innovation awards provide further evidence of the claimed invention's satisfaction of the industry's long-felt need. Specifically, the eight major industry innovation awards described above and the large amount of industry commentary recognize the claimed invention's combination of superior performance and light weight in comparison to competitors' prior art batteries. Meyer Decl. ¶

13, Apps. R, H. Commentators agree that the claimed invention solved the industry need for a high-power and heavy-duty, yet lightweight battery. *Id.* For at least the above reasons, the claimed invention fulfills the long-felt need described above, and therefore satisfies the third requirement for long-felt need under the *MPEP*.

Since the objective evidence submitted herewith establishes long-felt need as to all three requirements under the *MPEP*, Applicants respectfully submit that the claimed invention is nonobvious and that the Examiner's rejections should be withdrawn.

IV. New Dependent Claims 52-56

New dependent Claims 52-56 recite that the battery pack further includes "a protection circuit configured to protect at least one component of the battery pack." These claims respectfully depend from independent Claims 11, 19, 29, 38, and 45, and are patentable for at least the above reasons.

V. Conclusion

In light of the remarks above and the attached Meyer Declaration and accompanying materials, Applicants respectfully request entry of this Amendment and submit that claims 11, 13-19, and 21-56 are allowable. The undersigned is available for telephone conference at the below number.

Respectfully submitted,



Carlo M. Cotrone
Reg. No. 48,715

Docket No. 066042-9537-00
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Suite 3300
Milwaukee, Wisconsin 53202-4108
(414) 271-6560